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TEACHER PRAISE:

A FUNCTIONAL ANALYSIS

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Abstract

Classroom process data indicate that teacher praise cannot be equated with reinforcement. Often it is not even intended as reinforcement, and when it is, it frequently has some other function. The meanings and functions of behaviors typically included under the category of teacher praise are determined by the degree of congruence between verbal and nonverbal components and by the context in which the interaction occurs. Much teacher praise is determined more by teachers' perceptions of student needs than by the quality of student conduct or performance.

Teacher Praise: A Functional Analysis[1]

Jere E. Brophy[2]

Most educational psychologists and other sources of advice to classroom teachers stress the value of reinforcement of good conduct or successful performance, and single out teacher praise as a particularly valuable and desirable form of such reinforcement. Until recently, my own thinking and research was no exception; I assumed that teachers' statements of praise were intended and received as reinforcers. However, in study after study, measures of teacher praise failed to correlate with other classroom process variables, or with outcome variables, in ways that would be expected if such praise were in fact functioning as reinforcement. This led me to study the matter more systematically and to draw conclusions sharply at variance with the common view. In this paper, I argue that teacher praise typically does not function as a reinforcer and that much of it is not even intended as reinforcement, at least not in the usual sense of the term. Further, I believe that much teacher praise is reactive to and under the control of student behavior rather than vice versa, and that when praise does have effects on student behavior, those effects can be better understood using concepts from attribution theory than from reinforcement theory.

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[1]Portions of this paper constituted the author's presentations entitled "Teacher Praise: A Functional Analysis," delivered at the 1979 annual meeting of the American Psychological Association, and "Correlates of Teacher Praise," delivered as part of the symposium entitled "Teacher Praise Revisited" at the 1980 meeting of the American Educational Research Association.

[2]Jere E. Brophy is the coordinator of IRT's Classroom Management Study and a professor of teacher education and educational psychology.

The Characteristics of Reinforcers

Reinforcement theorists (c.f. Premack, 1965) apply the term "reinforcer" to any consequence that increases the frequency of a behavior when performance of that behavior is made contingent upon presentation of the consequence. Individuals differ from one another, and even from themselves over time, in their responsiveness to potential reinforcers. Consequences capable of controlling the behavior of most people will not work with certain individuals, and thus will not function as reinforcers for those individuals. Also, reinforcers are subject to satiation effects, losing their potency if used too often or over too long a period of time.

If they are to control behavior, reinforcers must be delivered contingently: the reinforcer is not delivered until the behavioral criterion has been met. In training animals, this contingency relationship is communicated primarily by minimizing the latency between the performance of the behavior and the delivery of the reinforcement. With humans old enough to understand language, the contingency relationship can be communicated verbally, so that reinforcement need not be immediate. However, the contingency between performance of the behavior and presentation of the reinforcer must be clear if reinforcement is to be effective.

Praise as Reinforcement

Praise is widely recommended as a reinforcement method for use by teachers. One reason is that it does not have the disadvantages associated with concrete reinforcers. The latter can be expensive to purchase and time consuming to apply regularly in the classroom, and their use engenders objections ranging from nutritional fears to concerns

about bribing students to learn. Praise is free, and is usually seen as desirable not only because it can be an effective reinforcer but because it provides encouragement to students, helps build self esteem, helps build a close teacher-student relationship, and other positive things.

A more specific advantage to praise is that it allows a direct statement of the contingency between the behavior and the reinforcement. That is, in the very act of praising, teachers can identify the specific behavior they are trying to reinforce.

Not everyone favors praise, however. Some oppose it on principle. Most of these are individuals who believe that learning is intrinsically worthwhile and rewarding, at least when learners are allowed to follow their own interests at their own pace (Montessori, 1964; Moore & Anderson, 1969; Piaget, 1952). Individuals who believe this look upon all attempts to control through extrinsic reinforcement as unnecessary, intrusive, and perhaps harmful.

This point of view has received support recently from research indicating that the introduction of extrinsic rewards (of which praise is one) reduces rather than increases motivation when the person has previously been performing the behavior in question for its intrinsic value (Deci, 1975; Lepper & Greene, 1978). Thus, praise is not necessarily desirable even in theory.

Others dislike praise because it implies differential status: The person distributing praise takes the role of expert or authority figure who is judging the behavior of the person being praised. Teachers who want a more egalitarian relationship with their students may minimize praise, especially contingent praise, for this reason. Similarly, some teachers avoid praise because they want to train their students to think for themselves rather than depend on them (the teachers) for guidance.

Thus, there are philosophical objections to praise despite its popularity.

Even so, a great many studies have made it clear that praise can function as a reinforcer by increasing specific student behavior when made contingent upon performance of that behavior (Lipe & Jung, 1971; O'Leary & O'Leary, 1977). I do not dispute this. However, the fact that praise *can* function as a reinforcer does not necessarily mean that it always or even usually *does*. Nor does it mean that praise has inherent value (many students find it embarassing or otherwise undesirable) or is synonymous with encouragement (we all know about "damning with faint praise"). Praise is not always or necessarily reinforcing.

Praise as Used in the Classroom

Studies of how typical teachers (who are not involved in a specially designed and monitored behavior modification program) use praise in the classroom indicate that it cannot be equated with reinforcement. Teacher praise typically is infrequent, non-contingent, global rather than specific, and determined more by students' personal qualities or teachers' perceptions of students' needs for praise than by the quality of student conduct or achievement.

Frequency of Classroom Praise

The fact that teachers are not systematically trying to reinforce through praise can be seen by looking at its frequency, both in its own right and in its relationship to criticism or punishment. Classroom studies of praise indicate that it occurs relatively infrequently, and that there is less praise than criticism or punishment in the average classroom, if criticism or punishment for misbehavior (not just poor work) is included (Heller & White, 1975; Luce & Hoge, 1978;

Meyer & Thompson, 1956; Thomas, Presland, Grant, & Glynn, 1978; Meyer & Lindstrom, Note 1).

Praise of good classroom conduct is particularly rare (Anderson, Evertson, & Brophy, 1979; Heller & White, 1975; Luce & Hoge, 1978), especially after the first few grades (Brophy, Evertson, Baum, Anderon, & Crawford, 1979). Data from two recent studies are typical.

Anderson, Evertson, and Brophy (1979), studying first-grade classrooms, found that teachers praised about 11% of the correct answers that students gave to their questions. They also gave praise following 18% of the students' reading turns. In the typical classroom, academic performance was praised about once every five to ten minutes, and good conduct or behavior was praised less than once every two hours.

Evertson, Anderson, Anderson, and Brophy (in press), studying junior high math and English classes, observed teacher praise in about 10% of the public response opportunities and about 3% of the private academic related contacts between teachers and individual students. Behavioral praise was practically non-existent in this study.

These low rates of praise make it clear that teachers are not relying heavily on praise as a reinforcement technique. Note that the figures are for the class as a whole. Thus, even in a classroom where a teacher praises once every five minutes, the rate of praise for the average student would be something like once every two hours. Furthermore, the bulk of these praise statements would be responses to good answers made by the students in public discussions or recitations. Thus, even if all teacher praise were contingent and otherwise effective as reinforcement (which as we will see, is not the case), there does not seem to be enough of it to go very far.

Distribution of Praise

If teachers were using their praise in an attempt to modify student behavior, we would expect to see praise concentrated on those students whose behavior needs modification. This is only partly the case, at best. First, the frequency of praise in the classroom seems to depend not on student behavior but on the teacher's personality and style. Some teachers praise much more frequently than others. Also, the likelihood of receiving praise depends on student characteristics as well as specific behaviors. Boys relative to girls, and salient students relative to less salient students, receive both more praise and more criticism (Brophy& Good, 1974; Meyer & Lindstrom, Note 1). Certain students seem to get more praise and criticism simply because they are more initiatory and active within the classroom; they have more of every kind of interaction with the teacher.

Sometimes, classroom data do seem to indicate teacher attempts to use praise for behavior modification. Silberman (1969) and Evertson, Brophy, and Good (Note 2) found that teachers were likely to praise students about whom they were concerned (because they were working hard but having trouble mastering the material) or whom they rejected (because of their unacceptable disruptive behavior) more often than they praised students toward whom they were indifferent (quiet, conforming, non-initiatory students) or whom they especially liked (well adjusted, high achieving students). This is the pattern that would be expected if teachers were making special efforts to reinforce the behavior of those students who were objects of concern or rejection.

On the other hand, several studies have found that teachers give more praise to high expectation students than to low expectation students, even when opportunities to praise are taken into account. (Brophy & Good,

1974; Cooper & Baron, 1977; Heines & Hawthorne, Note 3). One would think that teachers would go out of their way to reinforce success from the low expectation students, who do not succeed as frequently as the high expectation students and who presumably need more encouragement. Yet, the opposite pattern is often observed. This suggests that teacher praise often is not a deliberate reinforcement attempt but instead is a spontaneous reaction to student behavior, elicited by the quality of student performance or by student bids for praise.

Studies of student effects on teachers have indicated that certain individuals and certain types of students predictably pull much more praise from teachers than others (Hunt, Joyce, Greenwood, Noy, Reid, & Weil, 1974; Yarrow, Waxler, & Scott, 1971; Brophy, Evertson, Anderson, Baum, & Crawford, Note 4). In particular, Brophy, et al. (Note 4) noted the difference between student initiated work contacts, in which students brought incomplete work to the teacher in order to get help, and student initiated approval seeking contacts, in which students brought up completed work to "show off" to the teacher in order to get praise or permission to do something else. The students who did the latter most often and successfully were those who not only could complete their assignments successfully, but also had personal qualities such as confidence, sociability, and extroversion that made them socially attractive as individuals and effective at "pulling" teacher praise.

The same kinds of students also tended to reward teachers for their praise by responding very positively to it -- smiling, beaming proudly, and the like. In effect, they were conditioning the teachers to praise them.

Yarrow, Waxler, and Scott (1971) observed the same phenomenon. In their

study, teachers were trained to treat students either positively or neutrally according to a prearranged schedule. However, certain students got much more positive treatment than others, and even succeeded in getting positive treatment during times when the teachers were supposed to be acting neutrally. Observation revealed that these students were rewarding the teachers with positive affect during their interactions with them, causing the teachers to become even more positive with them and to return to them for additional contacts sooner than to other students.

More recently, Stokes, Fowler, and Baer (1978) trained preschool children to "recruit natural communities of reinforcement." The children were trained to judge the quality of their work and to prompt their teachers to comment about it. This training enabled the students to "recruit" an increased rate of praise from the teachers. These studies make it clear that some teacher praise not only is not a deliberate reinforcement technique controlled by the teacher, but instead is conditioned operant behavior elicited and reinforced by students (some much more than others). Also, the distribution of praise across different students in the class may sometimes depend more on the behavior of those students in eliciting such praise than it does on the behavior of the teacher in attempting to reinforce systematically.

Quality of Teacher Praise

O'Leary and O'Leary (1977) indicate that teacher praise must have the following qualities to function effectively as reinforcement:

1. *Contingency:* The praise must be contingent upon performance of the behavior to be reinforced.

2. *Specificity:* The praise should specify the particulars of the behavior being reinforced.

3. *Sincerity/variety/credibility:* The praise should sound sincere. Among other things, this will mean that the content will be varied according to the situation and the preferences of the student being praised.

It may be that teachers specially trained in behavior modification praise this way, but observational data indicate that most teachers do not. Harris and Kapche (1978) list failure to praise contingently as one of the most common problems they encounter in trying to train teachers to use behavior modification in the classroom. Meyer and Lindstrom (Note 1), observing in Head Start classrooms, concluded that most praise was non-contingent on the child's prior behavior.

Anderson, Evertson, and Brophy (1979) found that first grade teachers praised about 11% of correct answers but also praised about 1% of incorrect answers. Also, the rates of praise following reading turns that contained mistakes were very similar to (actually slightly higher than) the rates of praise following errorless reading turns. Others have also noted that teachers may shift their criteria for "success" in praising students (Mehan, 1974), and more generally, that they are prone to praise incorrect answers occasionally (Bellack, Kliebard, Hyman, & Smith, 1966; MacLure & French, Note 5).

Furthermore, the distribution of this inappropriate praise is predictable: it is found most often among teachers who have low expectations for student learning, and is especially likely to be directed toward the particular students for whom the teacher has the lowest expectations (Brookover, Schweitzer, Schneider, Beady, Flood, & Wisenbaker, 1978; Kleinfeld, 1975; Weinstein, 1976; Rowe, Note 6; Fernandez, Espinosa, &

Dornbusch, Note 7; Taylor, Note 8; Amato, Note 9). No doubt, such praise is given in an attempt to encourage the student. However, it seems likely that, to the extent that the student recognizes what the teacher is doing, the result will be embarassment, discouragement, or other undesirable outcomes.

Lack of contingency or inappropriate contingency is not the only problem in the quality of typical classroom praise. Specificity is remarkably low. Anderson, Evertson, and Brophy (1979) found that teachers were specific in only 5% of their praise statements following good work or good answers by the students. This is not as bad as it seems, because in many of these situations it was clear to the student (or to all concerned) what was being praised. Even so, 5% seems unacceptably low.

In the same study, the rate of specificity for praise of good conduct or other classroom behavior was 40%. This is much higher than the 5% figure seen in academic situations, but still unacceptably low, especially when it is considered that behavioral praise is usually intended by the teacher as a way to motivate conformity by the other students through vicarious reinforcement effects.

Teacher praise often lacks credibility, as well. Sometimes, this is because of the problems of lack of contingency or specificity mentioned above. Also, the verbal content frequently is not backed by, or is even contradicted by, non-verbal expressive behavior (Feldman & Donohoe, 1978; Feldman & Orchowsky, in press; Friedman, 1976).

Data on praise from the Brophy, et al. (Note 4) study are especially instructive. This study focused on student attributes and their effects on the frequency and quality of teacher-student interaction in 21 classrooms in grades 2 through 5. Students had been rated by their previous and present teachers on personal attributes (calm, careful,

happy, achieving, mature, cooperative, creative, attractive, persistent, object of teacher attachment, object of teacher concern, noticeable, and makes eye contact).

The interaction between these 21 teachers and 362 of their students then was observed for 10 half-days, using an adaptation of the Brophy-Good Dyadic Interaction Coding System. The adaptation (Brophy, King, Evertson, Baum, Crawford, Mahaffey, & Sherman, Note 10) retained a focus on dyadic teacher-student interactions, but reduced emphasis on the cognitive aspects in favor of affective aspects (smiling and other non-verbal indicators of positive affect by either the teacher or the student; teacher frowning; student acting cowed or sullen).

Analyses of the teachers' patterns of interaction according to each of the 13 student attributes indicated that troublesome students often got as much verbal praise and access to classroom rewards as more conforming and successful students, but that nonverbal measures usually indicated negative affect in the teacher, the student, or both. With successful, well-liked students, on the other hand, the nonverbal indicators were mutually positive. Thus the quality, and probably the credibility and effectiveness, of teacher praise varied with student attributes and teacher attitudes.

In addition, it was clear that teachers' attempts to reinforce desirable behavior in troublesome students were determined not only by the need for such reinforcement, but by the students' personal qualities and affective responses to the teacher. Students whose patterns of problem behavior were non-threatening (those described as restless, unhappy, tending to give up easily, or so quiet and passive as to be not

easily noticeable) were praised relatively often.

This was not true, however, for those who were described as uncooperative or nominated as students that the teacher would like to be rid of (especially if these students were sullen or defiant in addition to being disruptive). Praise was not used as a systematic reinforcement technique with these students, because the teachers wished to minimize their interactions with them or because it was not effective in the first place (most of these students probably did not value teacher praise).

There were also interesting context differences in the quality of teacher praise, as indicated by contrasting relationships between measures of praise in various contexts and other measures from the study. Analysis of significant correlations ($p < .05$, $N = 21$ classrooms) revealed that teacher praise sometimes appeared to be an attempt (although not very credible) to reinforce student behavior and sometimes a (generally credible) spontaneous reaction to student behavior, depending on the type of student and the context in which the interaction occurred.

Praise during student initiated approval seeking contacts was likely to go to mature, high achieving, confident students who showed positive affect toward the teacher and elicited a generally positive pattern of treatment from the teacher.

In contrast, *teacher praise occurring during student initiated work contacts* was usually directed to the more immature and teacher-dependent students, particularly students lacking in self-confidence that the teachers were trying to encourage. Such praise correlated positively with a broad pattern of positive teacher treatment: other measures of praise, making a good example of the student in front of the class, physical affection toward the student, and flattery of the student. On the other hand, the teachers were more likely than usual to refuse the requests

of these students for permission to do classroom housekeeping tasks, and the teachers were likely to show negative non-verbal reactions during personal and social contacts with these students. Thus, their reinforcement of these students was more deliberate and less spontaneous, and it did not carry over from academic contacts to personal and social contacts.

In contrast to both of these patterns for student initiated contacts, *praise occurring in teacher initiated work contacts* was likely to be directed toward students with whom the teacher shared an unusually intense emotional relationship. Correlated student characteristics (absent often, lacking in self confidence) do not identify any single particular type of student as most likely to have this kind of emotional interaction with the teacher. However, the interaction correlates include evidence of both positive and negative emotional involvement with the students who were often praised in teacher initiated work contacts. These correlates include: criticism in teacher initiated work contacts, positive student reactions during such contacts, teacher smiling, teacher frowning, frequent criticism or punishment for misbehavior, teacher physical affection, and general rate of positive contacts with the teacher. This pattern indicates that teachers were predisposed to respond emotionally and evaluatively to certain students. The result was a more intensive type of praise of their desirable behavior than occurred normally. This praise was more likely to be initiated by the teacher than to be in response to something done by the student, and it was more likely to be accompanied by non-verbal evidence of positive affect.

Analyses of the total of *praise of students' good answers given during public response opportunities plus praise of good work during private interactions* revealed that high scores were associated with students described as unhappy, unattractive, uncreative, lacking in persistence, unlikely to look you in the eye, and rejected by the teacher. It is of interest that this pattern of student unhappiness and self-concept problems was not accompanied by indications of frequent misbehavior: these were not the disruptive, aggressive, or defiant students. Correlates were confined to other measures of teacher praise and positive treatment of the students, along with indications that the students responded positively to this treatment by smiling and rewarding the teacher.

Thus, the highest rates of praise went not to the high achievers or best adjusted students, but to rather unattractive and unhappy students that the teacher disliked but was trying to continually motivate or reassure through positive treatment. Apparently the teachers could sustain this kind of interaction with these students despite dislike for them, partly because the students did not overwhelm them with continuous misbehavior, and partly because the students responded positively to this treatment. Students who freqeuntly and continuously misbehaved, especially those who responded sullenly to the teacher, were unlikely to receive this kind of consistent positive treatment and praise.

Praise of students for good behavior was rare but did occur frequently enough to analyze, and the patterns of correlation make it clear that teachers were using this praise in an attempt to motivate other students by vicarious reinforcement effects rather than to directly reinforce the students being praised. Behavioral praise of this kind

went to students described as high achieving, quiet, conforming, and hard working, clearly those least in need of reinforcement for such behavior. Unfortunately for the teachers, the admirable qualities of these students did not extend to include peer leadership and popularity. That is, the teachers might have been successful to a degree in using the vicarious reinforcement principle if they had praised students who were looked up to by their peers, but instead they tended to praise "teacher's pets."

Taken together, the data on praise from this and other studies suggest that much teacher praise is not even intended as reinforcement but instead is reactive behavior elicited and reinforced by students themselves. Furthermore, most of the teacher praise that apparently is intended as reinforcement probably does not function very effectively as such, because it is not systematically contingent upon desirable behavior, lacks specification of the behavioral elements to be reinforced, and/or lacks credibility.

Praise and Student Achievement

Given what has been said so far, it should not be surprising that praise does not correlate with student achievement, as it would if it were functioning as reinforcement. Correlations between praise and student achievement are weak and mixed in direction (Dunkin & Biddle, 1974; Rosenshine & Furst, 1973). Rate measures (frequency of praise per unit time) usually correlate positively with achievement, but percentage measures expressing the rate of praise of good answers or good work relative to the opportunity to praise such good answers or good work usually do not correlate significantly one way or the other.

Several studies in the early elementary grades have suggested that praise correlates weakly but positively with student achievement in low SES or low ability classes, but does not correlate at all or correlates weakly but negatively in high SES or high ability classes (Ascione & Cole, 1977; Brophy & Evertson, 1976; Cantrell, Stenner, & Katzenmeyer, 1977; Good, Ebmeier, & Beckerman, 1978; Murnane & Phillips, 1978; Stallings & Kaskowitz, Note 11; Eggert, Note 12).

These recent findings make sense for several reasons. First, low SES/low ability students experience failure frequently and thus are likely to be discouraged, perhaps even alienated learners. Teacher praise and encouragement for academic progress probably is much more meaningful and motivating to them than it is for high ability students accustomed to consistent success. Second, young students in the early grades, especially those who are low in ability, may not clearly perceive the distinctions between praise that is or is not contingent, specific, or credible. To the extent that this is true, even non-contingent praise might have beneficial effects (in this connection, see Cormier, Note 13), and at the same time might not have the negative effects to be expected later (student embarrassment, discouragement). Third, to the extent that low ability students are less cognitively advanced than other students, they may retain an orientation toward pleasing adults and taking what adults say at face value longer, and thus may be responsive to teacher praise for an extra grade or two in school.

In any case, it is only with low SES/low ability students in the early grades that praise seems to have genuine reinforcing effects on student learning. It is true that measures of praise of good student answers tend to correlate weakly but positively with student learning in the upper elementary grades and in the junior high and high school grades

(Evertson, Anderson, Anderson, & Brophy, in press; Flanders, 1970).

However, it appears that these correlations appear simply because praise of good student answers is part of a more fundamental teaching pattern involving concentration on classroom recitation and group discussion. Measures of time spent in these activities tend to correlate with achievment more strongly than measures of praise do, and in general, the data indicate that structuring the classroom in order to elicit good student answers in the first place is far more important in determining achievment than praising those answers after they have been elicited. Teacher praise appears to have little or no causal role in its own right, at least in typical everyday classroom interactions.

Functions of Teacher Praise

If praise typically is not part of a systematic reinforcement effort, what are its functions? I have no direct data on the matter, but I can draw inferences from several observational studies and numerous discussions with teachers. In addition to its deliberate use as reinforcement, praise can have the following meanings and functions.

Praise as Spontaneous Expression of Surprise or Admiration

Occasionally, students' responses are surprisingly (at least to the teacher) insightful, or their assignments surprisingly well done. This may cause the teacher to praise their accomplishments by expressing surprise or admiration. Ironically, this kind of praise, which is given spontaneously rather than as part of a systematic effort to reinforce, probably is the most reinforcing in its effects on students.

Praise as Balance for Criticism or Vindication of Predictions or Expectations

Regularly in dealing with habitual underachievers, and occasionally in dealing with other students when they perform below their potential, teachers criticize them for sloppiness or poor effort, or state that they are capable of doing (and expected to do) better work. Then, if performance improves, they praise the improved work. In a sense, this is just another example of teachers' efforts to reinforce systematically. However, it often has a special connotation: the teacher is not only praising the students but also justifying his or her own previous behavior. Such praise often communicates "See, you deserved my earlier criticism," or "See, I said that you could do better, and I was right!" To the extent that teacher praise includes such messages, its effectiveness as a reinforcer probably is reduced.

Praise as Attempted Vicarious Reinforcement

The teacher's intention here is not so much to praise the desired behavior of the student to whom the message is ostensibly directed, but instead to change or control the behavior of other students ("I like the way Susie has cleaned up her desk."). Unless the students singled out for such "praise" are very immature and teacher dependent, they are likely to feel manipulated or punished rather than rewarded by it.

Praise as Positive Guidance or Avoidance of Criticism

A related form of pseudopraise is used by teachers who realize that singling out a student's good conduct is not likely to reinforce that student, but who do so nevertheless because they want to avoid nagging, criticism, or even just the sheer monotony of repeated behavioral demands. Such teachers use "I like the way..." in order to provide

guidance in positive language. Often this is part of a larger attempt to create a friendly, cooperative classroom atmosphere.

Praise as Ice Breaker or Peace Offering

Praise may be used to establish communication with alienated, uncommunicative students or with disruptive students whom the teacher has had to criticize or punish. With the latter, it often is a way of letting the students know indirectly that they are "out of the doghouse." Flattery and compliments regarding grooming or clothing often serve similar functions.

Praise as Student-Elicited Stroking

The Brophy, et al. (Note 4) study revealed that the students who got the highest rates of praise for good academic work received much of that praise because they elicited it directly from the teacher. Usually, they were cheerful and extroverted students who brought completed work up to the teacher and showed it off proudly, communicating implicitly or even explicitly that positive responses were expected.

Praise as a Transition Ritual

Much classroom praise occurred in situations where students were expected to show the teacher that they had finished an assignment, whereupon they could begin some other activity. Certain students came up and showed off their work proudly at these times, and elicited the kind of praise described above. However, most students simply indicated that they had finished the assignment, and they wanted the teacher to certify that they were in fact finished and thus eligible to begin self-chosen activities. In these situations, the verbal praise tended to be perfunctory, and the teachers' non-verbal behavior, in the context of the situation, communicated official recognition that the student had

finished the assignment and could make a transition into a new activity. There was no sustained attention to the quality of the student's performance or communication that the performance had been particularly outstanding or otherwise praiseworthy.

Praise as Consolation Prize or Encouragement

In general, and increasingly as students get older, teachers deal with them rather impersonally, concentrating on the tasks of teaching and learning. When things go well, they keep moving along at a good pace, stressing the academic content under consideration and seldom if ever stopping to praise the student or introduce other, more personal, considerations.

Most interactions with the best students are entirely academic in focus, although the students will occasionally be praised in public when they make an unusually creative or impressive contribution to a class discussion, or in private through complimentary remarks in addition to grades given for unusually good individual work assignments.

Slower students, however, are often praised, both publicly and privately. This is especially likely to be the case if these students are basically cooperative and teacher dependent but slow and plodding, so that the teacher takes the role of a patient, helpful, or even protective tutor and resource person (alienated and hostile students who threaten the teacher do not get this kind of kid glove treatment).

The timing and quality of this praise make it clear that teachers are not so much trying to reinforce specific behavior as to provide general encouragement and reaffirmation of the teacher-student relationship. Such praise appears grossly deficient, in fact, from a narrow reinforcement purview. Some of it even follows incorrect answers or

generally poor performance, suggesting that the teacher is reinforcing error or failure rather than success.

Given that such praise is directed toward certain kinds of students whom teachers believe need this kind of encouragement, it may well be that such praise is effective in the long run. I will investigate this possibility in an ongoing study of student motivation in the classroom.

Research Implications

There are other subtypes of "praise" in addition to these commonly observed ones. The larger conclusion here is that the meaning and function of teacher "praise" will depend not only on the verbal content, but on non-verbal accompanying behavior that can either reinforce or contradict it, and on situation and context factors that condition student expectations about and perceptions of teacher behavior. Because of these factors, very similar teacher praise statements can be perceived as sincere and experienced as reinforcement by certain students in certain situations, but perceived as manipulation or condescension and experienced as punishment by other students in other situations. This underscores the importance of taking into account the classroom ecology in interpreting classroom process data, especially the need to think about the meanings of teacher behavior to the students.

The same can be said about many other teacher process behaviors. For example, just as praise cannot be equated with reinforcement, neither can ignoring be equated with extinction nor criticizing with punishment. Functional analyses of most of the classroom process variables commonly used in classroom research will reveal that our existing categories are too

broad, implicitly including (and implicitly defining as synonymous) several different behaviors that have contrasting meanings and functions, even though they share surface similarities. If such analyses are performed, and if the results lead to more differentiated and elaborated classroom coding systems, we can expect to see richer and more coherent findings.

Teaching Implications

Teachers typically do not systematically use praise as a reinforcer. Should they? If so, how, and with whom? I find these questions difficult to answer because I believe that praise has been seriously oversold.

Potency of Praise as a Reinforcer

Teacher praise seems to be a weak reinforcer, at least after the first few grades of school. Until children are seven or eight years old, they are very oriented toward pleasing adults, and have what Kohlberg (1969) calls a "good boy" or "good girl" sense of morality. For these children, praise constitutes guidance from an authority figure and feedback indicating that one is pleasing that authority figure.

Once this childish concern about pleasing adult authority figures recedes in favor of peer orientation or other motives, teacher praise probably becomes a very weak reinforcer for most students. This is especially true with respect to its potential for controlling disruptive behavior or other unacceptable classroom conduct (in contrast to its potential for reinforcing achievement), because students who were concerned about pleasing the teacher would not be behaving disruptively in the first place. Ironically, then, teacher praise is likely to be least useful for the kinds of students and behavior problems that tea-

chers are most concerned about.

Teachers seem to be aware of this. Ware (1978) had high school students and their teachers rate a list of 15 potential rewards drawn up on the basis of previous pilot work. Students asked to rank the rewards for desirability and effectiveness ranked the opportunity to reach a personal goal first, followed by: school scholarships; compliments and encouragement from friends; being accepted as a person or having their opinion sought; trophies, certificates, medals, and ribbons; job-related physical rewards such as raises and vacations; special privileges or responsibilities; formal letters of recognition or appreciation; having their names printed in the newspapers or repeated on a loud speaker; teacher or employer compliments and encouragement; money for specific accomplishments; parties, picnics, trips, or banquets; election to office; being chosen to be on special programs; or being a winner in a contest. Students ranked teacher praise and encouragement only tenth out of the 15 potential reinforcements listed. Interestingly, teachers ranked it even lower, almost at the bottom. It appears that teachers are aware that their praise is not very reinforcing to most students even though it is stressed so widely.

Feasibility of Praise as a Reinforcer

Even if teachers were convinced of the value of praise as a reinforcer and tried to use it as such, it is questionable whether they could do so successfully in anything other than one-to-one situations. The complexities of trying to reinforce the specific behaviors of the different students in the class would quickly exceed the teacher's time and ingenuity, even if compromise methods like contract systems or token economies were used. Teachers dealing with classes of 25 or 30 students

are not even going to notice all of the relevant specific behaviors that students perform, let alone be able to reinforce them effectively.

Reinforcement of specific behaviors in an ongoing class situation simply is not feasible, even with praise as the reinforcer (assuming its effectiveness). At most, the teacher can concentrate on a few specific behaviors for the class as a whole, or on a larger number of specific behaviors for a few individuals. Beyond this, however, the teacher must function by obtaining the general cooperation of the students rather than by continually reinforcing their specific behaviors.

Student Response to Praise

Student response to teacher praise can be expected to vary from highly positive to neutral to highly negative. That is, praise will act as a reinforcer for some students, but other students will be indifferent to it, and still other students will actually experience it as punishment (perhaps to the point that they will become *less* likely to repeat the behavior that was praised). The latter outcome is especially likely in the case of a student who is fighting a "teacher's pet" image who gets singled out publicly as an example to the rest of the class.

Rather than just assume the effectiveness of praise, teachers should monitor students for their apparent reaction to it, and respond accordingly. Classroom interaction data suggest that most teachers do this to at least some degree, although not necessarily consciously and systematically.

Existing theory and data provide some clues to the kinds of students who will respond positively to praise. In general, it appears that young students in the early grades are likely to respond positively,

particularly those who are most oriented toward pleasing adult authority figures rather than impressing their peers. Also, at any grade level, but perhaps especially in the earlier grades, students who are low in ability, who come from low SES backgrounds, or who come from minority groups may be especially responsive to praise and encouragement from teachers. Finally, introverts apparently are more responsive than extroverts (Kennedy & Willcutt, 1964; Leith & Davis, 1969), and field dependent individuals are more responsive than field independent individuals[3] (Witkin, Moore, Goodenough, & Cox, 1977).

With students who have the opposite traits, and especially with field independent students who also happen to be high achievers accustomed to success, praise may be not only ineffective but actually counterproductive, at least if overused. Eden (1975) provides a theoretical explanation of how this can be. He notes that rewards can be classified according to whether or not they are commensurate with the desires or preferences of the person to be rewarded. If one receives the kind of reward that one expects and desires following performance of some behavior, one is likely to experience reinforcement and an increment in motivation. However, this will not occur if the expected and desired rewards are not obtained, even if performance of the behavior results in some consequence that other individuals would find rewarding.

Reviewing many studies, Eden offers evidence that providing the individual with the "wrong" reward not only fails to bring about an increment in motivation, but actually results in a decrease. The decrease

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[3] Field-dependent people's perceptions are strongly influenced by the existing organization of the perceptual field surrounding a focal stimulus. In contrast, the perceptions of field-independent people are more independent and more organized from within by the people themselves.

attributable to presentation of the "wrong" reward is considerably smaller than the increase likely to result if the individual is presented with the "right" reward, but it is a decrement nevertheless. (This seems to be the reason why overall motivation apparently decreases when individuals who have been operating on the basis of intrinsic motivation are presented with extrinsic rewards.)

Praise delivered to the wrong person, or in the wrong way, or under the wrong circumstances may not only be ineffective, but counterproductive. Of course, the danger here is not nearly as great as it might be for something like publicly ridiculing a student. Even so, there appears to be good reason to urge teachers not to be indiscriminantly positive in their evaluative remarks towards students, but instead to pick their spots and choose their words carefully.

Praise from the Standpoint of Attribution Theory

Preoperational[4] children typically introject the evaluative and moralistic statements of parents, teachers, and other adult authority figures. That is, they tend to internalize these statements directly, construing them in a literal and concrete way (to the extent that they understand them), and failing to analyze them carefully to determine whether or not they make sense. With children at this level, even praise that is noncontingent or otherwise defective as specific reinforcement may still function reasonably well as encouragement or more general reinforcement.

However, as children develop reversibility and other concrete operations, and as they come to expect increasingly orderly cause and effect

[4] Piaget describes as "preoperational," children aged (approximately) two through seven, who possess a variety of cognitive abilities but have not yet coordinated them into concrete operations (systematic concepts and strategies, such as negation or reversibility, which can be used for logical thinking and problem solving).

relationships, they come to realize that praise is expected only after certain kinds of behavior (conformity, success), and not others (disobedience, failure). This cognitive development, along with related changes in social-emotional development dealing with the transfer of primary concerns from pleasing authority figures to coping with developmental tasks and handling peer relationships, gradually enables them to begin to reflect upon and analyze adults' evaluational and moralistic statements, rather than to simply introject them as they did in the past.

As this process sets in, any effects that praise may have on behavior will no longer occur directly but will follow and depend upon the indivdiual's mediation of the meaning and implications of the praise. Even identical teacher statements made under the same circumstances and with the same intent (to provide encouragement or reinforcement) may be experienced very differently and may have very different effects in different individuals. Attribution theory (Dweck, Davidson, Nelson, & Enna, 1978; Weiner, 1979) provides a useful framework for analyzing some of these effects of individual mediation of praise statements.

Dweck, Davidson, Nelson, and Enna (1978) note that the meaning of praise will be determined by the base rates of frequency of praise following particular behaviors or events, the contingency that is communicated between the praise and some prior behavior or event, and the specific attribution statements made by the teacher (if any). Outcomes (including praise) that simply repeat existing base rates typically are not considered to have important meanings for the individual, compared to outcomes that counter the prevailing trends. Thus, students who are

praised under circumstances in which they know everyone gets praised are not likely to attribute the praise to anything special about themselves (the praise is due to the teacher's proclivity for praising certain kinds of behavior). On the other hand, praise that is unexpected is more likely to lead students to conclude that they have done something genuinely praiseworthy.

Praise that is consistently contingent upon success will be taken as feedback that success has been achieved. However, if praise is frequently used indiscriminantly in reference to behaviors unrelated to the correctness or quality of the students' responses, the praise becomes ambiguous. Thus, praise from a teacher who consistently praises contingently will cause students to infer that they have done something genuinely praiseworthy (at least in this teacher's eyes), but similar praise from a teacher who does not typically praise contingently may carry no information at all about the objective quality of the students' performance.

Finally, the meaning of evaluative feedback can be influenced by the attribution that the teacher makes when delivering it. Thus, a teacher who praises students' success and tells them that they are smart may teach them to attribute their success to a stable ability factor, but teachers who praise students for working hard enough to succeed will train them to attribute their success to unstable effort factors.

Dweck, Davidson, Nelson, and Enna (1978) reported interesting sex differences in the kinds of praise and criticism that teachers typically give to boys versus girls. The teachers they observed were relatively more likely to praise boys only for objectively successful performance, but to praise girls also for neatness, following instructions

to the letter, speaking clearly in addition to merely giving the correct answer, or for other matters of form rather than substance. When making negative evaluations, however, the teachers were likely to criticize girls only for unacceptable performance, but relatively more likely to criticize boys for sloppy handwriting, calling out answers, or other failures to follow the approved form of responding even when the intellectual quality of the response was acceptable.

These differences in teacher treatment of the two sexes are not particularly surprising in view of the well established tendency for girls to adhere more closely than boys to the idealized student role, and they can be defended as appropriate teacher attempts to train the students (particularly the boys) to follow the formal demands of the student role. This training includes, in part, the reinforcement of girls for following student role demands, which also presumably has the effect of motivating the boys according to the vicarious reinforcement principle.

However, an attribution analysis revealed that these were not the effects at all. As a result of this differential teacher behavior, the students had learned to make differential attributions concerning the meaning of teacher evaluations. The boys paid serious attention to and apparently were reinforced by teacher praise of their success (the teachers tended to praise them only when they were objectively successful, so this praise was credible). On the other hand, boys minimized attention to and generally discounted teacher criticism (because too often this criticism was for matters of form rather than substance, and the boys recognized this, at least at some level). One result of this was that the boys attributed their successes to stable, internal ability factors and their failures to stable but external factors (in-

appropriate teacher attitudes) or internal but unstable factors (their own degree of effort). As a result, they were buoyed up by praise and undisturbed by criticism, and maintained generally positive expectations and self concepts.

On the other hand, the girls were not particularly reinforced or encouraged by teacher praise (too much of it was for matters of form rather than substance), but were very discouraged by teacher criticism (the teachers only criticized them when their performance had been inadequate). They tended to attribute their success to external factors (the teachers' inappropriate attitudes or behavior) or to internal factors other than ability (their tendency to follow the formal demands of the teacher and thus to receive praise even when they had not attained objective success). Failures, however, were attributed to stable, internal factors (lack of ability). Thus, despite ostensibly more positive and "reinforcing" treatment, girls were not particularly encouraged by praise, were overly discouraged by criticism, and in general, were less likely to develop positive self-concepts and expectations for achievement.

Finally, the authors also noted that girls occasionally gave clearly incorrect answers and received no feedback about the correctness of their answers but were praised for answering according to the correct form. This was never observed for boys, although boys occasionally got no feedback following a correct answer but were criticized for matters of form. Taken together, these differences in treatment enabled boys to shrug off the effects of failure by attributing it to external factors or to internal factors under their own control (effort), and thus to emerge with high hopes for the future. For girls, however, failure

suggested inadequacy: they tried their best (the teacher did not criticize their effort) but they still failed (therefore, the task must be too difficult for them). This led to negative attributions about ability and reduced expectations for future achievement on similar tasks.

This line of research reveals how teachers can undermine their own efforts to encourage or reinforce if they do so inappropriately. The work of Dweck, et al. (1978) stressed the role of attributions and related internal mediations in causing students to discount teacher praise (and criticism). It also is likely that other mediations could cause students to overreact negatively to praise, at least once their thinking becomes operational. That is, when teachers praise certain students too effusively or otherwise inappropriately, especially in response to performance that is not praised in other students, the recipients of the praise may suffer humiliation if they believe that the praise was honestly intended for their own good ("She must really think I'm hopeless if she praises me for that"). Or, they may question the teacher's credibility ("What's the matter with her? How could she think that that was good work?"). Alternatively, students might reject the praise as overdetermined and manipulative ("He's trying to embarrass me by killing me with kindness while calling attention to my poor work").

I could give more examples, but the point here is that students will mediate the meanings and effects of teacher praise, beginning around second or third grade and increasingly thereafter. Praise that is consistently contingent on success and includes credible attribution of the success to effort (not just ability) is likely to be encouraging or reinforcing, but other kinds of praise are not. Grossly inappropriate

praise is likely to be not only ineffective, but counterproductive.

Conclusion

This analysis indicates that teacher praise may have a variety of intended and actual functions in addition to reinforcement of student conduct or academic performance. Classroom research on praise seems unlikely to reveal much unless these different types and meanings of praise are built into coding systems. In any case, it seems clear that praise cannot simply be equated with reinforcement.

Pending such improvements in research methodology, the data suggest qualifications on our enthusiasm in recommending praise to teachers (who seem to be intuitively aware of its limitations in any case). Infrequent but contingent, specific, and credible praise seems more likely to be encouraging (and perhaps reinforcing, although more with respect to general effort than to specific behaviors) than frequent but trivial or inappropriate praise. Teachers who wish to praise effectively will have to assess how individual students respond to praise, and in particular, how they mediate its meanings and use it to make attributions about their abilities and about the linkages between their efforts and the outcomes of those efforts.

In view of the philosophical and practical problems inherent in trying to use extrinsic reinforcement in the classroom, the weakness of praise as a reinforcer in any case, and the difficulties involved in praising effectively, perhaps praise should be deemphasized. Instead, teachers can be encouraged to help their students learn to set appropriate goals (Rosswork, 1977) and to evaluate their own performance, supplying self-reinforcement rather than relying on the teacher (Glynn,

Thomas, & Shee, 1973; McLaughlin, 1976), and attributing outcomes to their own efforts rather than to ability or external causes (Andrews & Debus, 1978; Chapin, & Dyck, 1976; Dweck, 1975).

Reference Notes

1. Meyer, W. & Lindstrom, D. The distribution of teacher approval and disapproval of Head Start children. Final Report, Contract No. OEO-4120, United States Office of Economic Opportunity, 1969.

2. Evertson, C., Brophy, J., & Good, T. Communication of teacher expectations: Second grade. Report No. 92, Research and Development Center for Teacher Education, University of Texas at Austin, 1973.

3. Heines, B., & Hawthorne, R. Sibling-related teacher expectancies and their possible influence on classroom behaviors and achievement levels in seventh grade English classes. Paper presented at the annual meeting of the American Educational Research Association, 1978.

4. Brophy, J., Evertson, C., Anderson, L., Baum, M., & Crawford, J. The Student Attributes Study: preliminary report (abbreviated version). Report No. 4031, Research and Development Center for Teacher Education, University of Texas at Austin, 1976.

5. MacLure, M., & French, P. Routes to right answers: On pupils' strategies for answering teachers' questions. Paper presented at the Social Science Research Council conference on teacher and pupil strategies, St. Hilda's College, Oxford, September, 1978.

6. Rowe, M. Wait-time and rewards as instructional variables: Their influence on language, logic, and fate control. Paper presented at the annual meeting of the National Association for Research in Science Teaching, 1972.

7. Fernandez, C., Espinosa, R., & Dornbusch, S. Factors perpetuating the low academic status of Chicano high school students. Memorandum No. 138, Center for Research and Development in Teaching, Stanford University, 1975.

8. Taylor, D. Second grade reading instruction: The teacher-child dyadic interactions of boys and girls of varying abilities. Master's thesis, Rutgers, The State University of New Jersey, 1977.

9. Amato, J. Effect of pupil's social class upon teachers' expectations and behavior. Paper presented at the annual meeting of the American Psychological Association, 1975.

10. Brophy, J., King, C., Evertson, C., Baum, M., Crawford, J., Mahaffey, L., & Sherman, G. Manual for student attributes coding system. Report No. 4002, Research and Development Center for Teacher Education, University of Texas at Austin, 1974.

11. Stallings, J., & Kaskowitz, D. Follow through classroom observation evaluation, 1972-1973. Project URU-7370, Stanford Research Institute, 1974.

12. Eggert, W. A study of teaching behaviors as they relate to pupil behaviors, achievement and attitudes. Ph.D. thesis, University of Alberta, 1977.

13. Cormier, W. Effects of approving teaching behaviors on classroom behaviors of disadvantaged adolescents. University of Tennessee, Department of Educational Psychology and Guidance, Project No. 9-D-017, Grant No. OEG-4-9-520017-0029-057, USOE Bureau of Research, 1970.

References

Anderson, L., Evertson, C., & Brophy, J. An experimental study of effective teaching in first-grade reading groups. Elementary School Journal, 1979, 79, 193-223.

Andrews, G. & Debus, R. Persistence and causal attribution of failure: Modifying cognitive attributions. Journal of Educational Psychology, 1978, 70, 154-166.

Ascione, F., & Cole, P. Are nutturance and the satiation of social reinforcers equivalent operations? Journal of Psychology, 1977, 96, 223-233.

Bellack, A., Kliebard, H., Hyman, R., & Smith, F. The language of the classroom. New York: Teachers College Press, 1966.

Brookover, W., Schweitzer, J., Schneider, J., Beady, C., Flood, P., & Wisenbaker, J. Elementary school social climate and school achievement. American Educational Research Journal, 1978, 15, 301-318.

Brophy, J. & Evertson, C. Learning from teaching: A developmental perspective. Boston: Allyn and Bacon, 1976.

Brophy, J., Evertson, C., Baum, M., Anderson, L., & Crawford, J. Grade level and sex of student as context variables in elementary school. Journal of Classroom Interaction, 1979, 14, 11-17.

Brophy, J., & Good, T. Teacher-student relationships: Causes and consequences. New York: Holt, Rinehart, and Winston, 1974.

Cantrell, R., Stenner, A., & Katzenmeyer, W. Teacher knowledge, attitudes, and classroom teaching correlates of student achievement. Journal of Educational Psychology, 1977, 69, 172-179.

Chapin, M. & Dyck, D. Persistence in children's reading behavior as a function of N length and attribution retraining. Journal of Abnormal Psychology, 1976, 85, 511-515.

Cooper, H., & Baron, R. Academic expectations and attributed responsibility as predictors of teachers' reinforcement behavior. Journal of Educational Psychology, 1977, 69, 409-418.

Deci, E. Intrinsic motivation. New York: Plenum, 1975.

Dunkin, M., & Biddle, B. The study of teaching. New York: Holt, Rinehart, and Winston, 1974.

Dweck, C. The role of expectations and attributions in the alleviation of learned helplessness. Journal of Personality and Social

Psychology, 1975, 31, 674-685.

Dweck, C., Davidson, W., Nelson, S., & Enna, B. Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom and III. An experimental analysis. Developmental Psychology, 1978, 14, 268-276.

Eden, D. Intrinsic and extrinsic rewards and motives: Replication and extension with Kibbutz workers. Journal of Applied Social Psychology, 1975, 5, 348-361.

Evertson, C., Anderson, C., Anderson, L., & Brophy, J. Relationships between classroom behaviors and student outcomes in junior high mathematics and English classes. American Educational Research Journal, in press.

Feldman, R., & Donohoe, L. Nonverbal communication of affect in interracial dyads. Journal of Educational Psychology, 1978, 70, 979-987.

Feldman, R., & Orchowsky, S. Race and performance of students as determinants of teacher nonverbal behavior. Contemporary Educational Psychology, in press.

Flanders, N. Analyzing teaching behavior. Reading, Mass. Addison-Wesley, 1970.

Friedman, P. Comparisons of teacher reinforcement schedules for students with different social class backgrounds. Journal of Educational Psychology, 1976, 68, 286-292.

Glynn, E., Thomas, J., & Shee, S. Behavioral self-control of on-task behavior in an elementary classroom. Journal of Applied Behavior Analysis, 1973, 6, 105-113.

Good, T., Ebmeier, H., & Beckerman, T. Teaching mathematics in high and low SES classrooms: An empirical comparison. Journal of Teacher Education, 1978, 29, 85-90.

Harris, A., & Kapche, R. Problems of quality control in the development and the use of behavior change techniques in public school settings. Education and Treatment of Children, 1978, 1, 43-51.

Heller, M., & White, M. Rates of teacher verbal approval and disapproval to higher and lower ability classes. Journal of Educational Psychology, 1975, 67, 796-800.

Hunt, D., Joyce, B., Greenwood, J., Noy, J., Reid, R., & Weil, M. Student conceptual level and models of teaching: Theoretical and empirical coordination of two models. Interchange, 1974, 5 (No. 3), 19-30.

Kennedy, W., & Willcutt, H. Praise and blame as incentives. Psychological Bulletin, 1964, 62, 323-332.

Kleinfeld, J. Effective teachers of Eskimo and Indian students. School Review, 1975, 83, 301-344.

Kohlberg, L. Stage and sequence: The cognitive-developmental approach to socialization. In Goslin, D. (Ed.). Handbook of socialization theory and research. Chicago: Rand McNally, 1969.

Leith, G., & Davis, T. The influence of social reinforcement on achievement. Educational Research, 1969, 2, 132-137.

Lepper, M. & Greene, D. The hidden costs of reward: New perspectives on the psychology of human motivation. Hillsdale, New Jersey: Erlbaum, 1978.

Lipe, D., & Jung, S. Manipulating incentives to enhance school learning. Review of Educational Research, 1971, 41, 249-280.

Luce, S., & Hoge, R. Relations among teacher rankings, pupil-teacher interactions, and academic achievement: A test of the teacher expectancy hypothesis. American Educational Research Journal, 1978, 15, 489-500.

McLaughlin, T. Self-control in the classroom. Review of Educational Research, 1976, 46, 631-663.

Mehan, H. Accomplishing classroom lessons. In Cicourel, A., Jennings, K., Jennings, S., Leiter, K., MacKay, R., Mehan, H., & Roth, D. (Eds.). Language use and school performance. New York: Academic Press, 1974.

Meyer, W., & Thompson, G. Sex differences in the distribution of teacher approval and disapproval among sixth-grade children. Journal of Educational Psychology, 1956, 47, 385-396.

Montessori, M. The Montessori method. New York: Schocken, 1964.

Moore, O., & Anderson, A. Some principles for design of clarifying educational environments. In Goslin, D. (Ed.). Handbook of socialization theory and research. Chicago: University of Chicago Press, 1969.

Murnane, R., & Phillips, B. Effective teachers of inner city children: Who they are and what they do. Princeton: Mathematica Policy Research, 1978.

O'Leary, K., & O'Leary, S. (Eds.). Classroom management: The successful use of behavior modification (2nd edition). New York: Pergamon, 1977.

Piaget, J. The origins of intelligence in children. New York: International Universities Press, 1952.

Premack, D. Reinforcement theory. In Levine, D. (Ed.). Nebraska symposium on motivation, Volume 13. Lincoln: University of Nebraska Press, 1965.

Rosenshine, B. & Furst, N. The use of direct observation to study teaching. In Travers, R. (Ed.). Second handbook of research on teaching. Chicago: Rand McNally, 1973.

Rosswork, S. Goal setting: The effects on an academic task with varying magnitudes of incentive. Journal of Educational Psychology, 1977, 69, 710-715.

Silberman, M. Behavioral expression of teachers' attitudes toward elementary school students. Journal of Educational Psychology, 1969, 60, 402-407.

Stokes, T., Fowler, S., & Baer, D. Training preschool children to recruit natural communities of reinforcement. Journal of Applied Behavior Analysis, 1978, 11, 285-303.

Thomas, J., Presland, I., Grant, M., & Glynn, T. Natural rates of teacher approval and disapproval in grade-7 classrooms. Journal of Applied Behavior Analysis, 1978, 11, 91-94.

Ware, B. What rewards do students want? Phi Delta Kappan, 1978, 59, 355-356.

Weiner, B. A theory of motivation for some classroom experiences. Journal of Educational Psychology, 1979, 71, 3-25.

Weinstein, R. Reading group membership in first grade: Teacher behaviors and pupil experience over time. Journal of Educational Psychology, 1976, 68, 103-116.

Witkin, H., Moore, C., Goodenough, D., & Cox, P. Field-dependent and field-independent cognitive styles and their implications. Review of Educational Research, 1977, 47, 1-64.

Yarrow, M., Waxler, C., & Scott, P. Child effects on adult behavior. Developmental Psychology, 1971, 5, 300-311.

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